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Western Research Farm Summary

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Western Research Farm Summary

Abstract

Contains the Farm Summary for the Western Research and Demonstration Farm.

Keywords

Agronomy

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Natural Resources and Conservation

Western Research Farm Summary

RFR-A1439

**Western Iowa Experimental Farm Association
Founded 1946**

Officers

Chairperson Kyle Bohnker, Charter Oak
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Larry Ketelsen At large

Western Research Farm

Wayne Roush Superintendent
Chris Beedle Ag Research Specialist

Mark Honeyman Coordinator, Research Farms
Tim Goode Manager, Research Farms
103 Curtiss Hall, ISU
Ames, IA 50011

Farm Summary

Wayne Roush, farm superintendent

Farm Comments

Developments. Equipment changes during 2014 included purchases of a new Demco 550 grain cart with scale and tarp, a used Hagie hi-boy sprayer, and a new gooseneck flatbed trailer. The sprayer and gooseneck trailer to haul it will be shared with another ISU farm. A new Gandy drop fertilizer spreader also was purchased. These purchases will help support many of the trials conducted by the farm. A swine weighing scale was replaced and a used gravity wagon was transferred to another farm.

Numerous general farm maintenance activities occurred over the year. The new automated weather station for the Iowa Mesonet system (installed in late 2013) came on-line in late summer 2014. Various problems plagued it during initial startup and most of the summer was spent chasing problems, installing a new enclosure, and re-calibrating its instrumentation. It now will supply real-time weather data accessible to the public.

Construction of a new machinery storage hoop was completed. Dirt work in fields, terrace repairs, and removal of volunteer trees and old fences helped to consolidate various fields. General clean-up, scrap iron sales, and some new pasture border fence installation also occurred.

A new staff member, Chris Beedle, was added in December. He is a 2009 ISU graduate and a western Iowa native.

Field days and tours. Because the county paved road that bisects the farm was scheduled for total reconstruction, a minimum of field days and activities were held at the farm in 2014. The construction commenced May 27 and was not totally completed by December 31. Numerous rain events delayed

progress and created extremely muddy conditions. The mud, activity of construction equipment, and truck traffic greatly hindered movement both to and around the farm. During the actual pouring of new concrete, a cement truck passed by the farm every 4-5 minutes! Only four events were held during the year, with a total of 232 people either visiting the farm or attending a meeting. The Annual Meeting, Crop Update Informational meeting, and Manure Applicator Certification Training were held in late February. Thirteen producers attended the ISU Farmer Cooperator Trials participant meeting, also in February. The participant meeting covers all trials statewide, with an emphasis on the local ones. Participants can see how their trials/ideas mesh with others and get a chance to interact with ISU crops personnel.

New projects. Three new projects were started on-site in 2014. Plasticity in native and exotic bunch grasses within low and high diversity prairie communities, diesel fuel consumption during field operations, and documenting efficiencies of heavy weight market pigs in bedded hoop barns were conducted. Other new project developments were under the ISU On-Farm Cooperator Trials banner, which completed 14 of the 24 trials started in the spring of 2014. The 10 abandoned ones were due to wet weather induced poor field conditions.

Livestock. With the addition of ISU On-Farm Cooperator Trials to Western's research mix, livestock production has been rearranged to more closely match available labor. Livestock production at the farm will focus on research-based trials. Livestock production in 2014 included a group of 20 steers pastured during the summer and then shipped to another farm for finishing. These steers were part of the McNay Research farm's cattle breeding trial. Any extra pastures were either mowed for hay

or sold as standing forage. Portions of the cattle finishing facilities were rented out.

Swine production consisted of finishing 36 head as part of a trial. The pigs were weighed every 28 days and ultra-sounded for muscle and fat deposition three times as they neared the designated terminal weight.

Crop Season Comments

At the farm, corn planting started on May 3 and was completed on May 5. Corn harvest started on November 24 and was completed November 30, with an average yield of 195.8 bushels/acre. Soybeans were planted between May 6 and May 9. Soybean harvest started October 15 and was completed on October 16, with an average yield of 62.0 bushels/acre. These corn and soybean yields were 10.8 percent and 10.0 percent above five-year farm averages. Alfalfa yields averaged 6.5 tons/acre with three cuttings harvested and were 1.36 ton/acre above the five-year farm average.

The year began with the coldest winter in 35 years. Persistent below average cold, little snow cover, and relatively dry soils allowed the ground to freeze much deeper than normal.

Recorded soil temperatures at the farm indicate soils finally thawed across western Iowa early in the fourth week of April.

Frequent rains and cold soils of mid- to late-April got planting off to a slow start, however much drier weather in May allowed rapid planting progress. A hard freeze occurred over most of western Iowa on May 16. Although some area crops experienced enough damage to require replanting, none at the research farm were damaged to that degree.

During planting, there was once again long-term drought concerns due to the unusually dry weather during the second half of 2013. At planting, there was enough soil moisture to get the crop up, but not enough to sustain it during the summer. These concerns were short-lived however, as June precipitation totals were well above normal at every Iowa reporting point. Parts of western Iowa eventually recorded their wettest calendar year of record.

The rains subsided across most of the state and growing conditions were nearly ideal during July. No damaging heat occurred during the critical reproductive phase of crop development with only three days reaching 90°F or above. Statewide there are normally 23 days above 90°F.

Crop maturity and dry-down was slowed by the cool and abnormally wet growing season, and the 2014 harvest got off to a very slow start. Frequent rains in September and early October also hampered the start of harvest, however much drier weather from mid-October through early November allowed harvest to be completed.

Although yields were above normal for the farm, corn test weights were below normal and grain moistures ran above normal.

One good effect of a cooler and wetter summer was soil moisture levels at the end of the growing season were the greatest since 2010.

Acknowledgements

We would like to thank all members, sustaining members, and donors who support the Western Research and Demonstration Farm through donations of time, money, and products. Their support has made many of this year's trials possible.

Sustaining Members

Community Bank, Dunlap
 First State Bank, Mapleton
 Sloan State Bank, Sloan and Whiting
 Iowa-Nebraska State Bank, S. Sioux City
 Valley Bank, Mapleton and Danbury
 Western Iowa Power Cooperative
 Soil and Water Conservation Districts of:
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 Monona County
 Woodbury County

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Bomgaars, Mapleton
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 Mapleton Press, Mapleton
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 Wyffels Seeds, Brian Stueve

Research Farm Projects

<u>Project</u>	<u>Project Leader</u>
Documenting efficiencies of heavy weight market pigs in bedded hoop barns	M. Honeyman/D. Stender
Dominant grass effects on diversity and functioning of restored Grasslands	B. Wilsey
Effects of biochar and manure applications to prairie establishment	L. Biederman
Plasticity in native and exotic bunch grasses within low and high diversity prairie communities	K. Barber
National Phenology network study	M. Schwartz
Native cover crops: effects on prairie establishment and weed invasion	B. Wilsey
Plant species effects on diversity and weed invasion resistance in restored grasslands	B. Wilsey

<u>Project (continued)</u>	<u>Project Leader</u>
Diesel fuel consumption during field operation(s) <ul style="list-style-type: none">Planting cornDrilling cover cropsMowing hayHauling balesHauling grainRotary mowing	M. Hanna
U.S. Weather Service weather station <ul style="list-style-type: none">Air temps; hi, lo, currentSoil temps; 1, 2, 8, 20, 40 in.Evaporation dishDaily precipitationSevere weather spotter	
Iowa MesoNet weather station <i>(real time data online)</i> <ul style="list-style-type: none">Air temperatureRelative humidityPrecipitationWind: speed & directionSolar radiationSoil temperatureSoil moisture	
Demonstrations: <ul style="list-style-type: none">Manure settlement basinComposting livestock mortalitiesComposting hoop buildings manure packSwine finishing in hoop buildings	
Farmer Cooperator Trials <i>(see article elsewhere in this report for details)</i> <ul style="list-style-type: none">Corn<ul style="list-style-type: none">foliar fertilizerDrought tolerancePopulation (5)Cover cropsCorn rootworm traits (2)Sulfur fertilityMechanical injury at VT applicationsSoybean<ul style="list-style-type: none">treated seedFungicide	